Writing Software Design Document

Dr. Ayman Ezzat
Assistant Professor, MIU, FCIH
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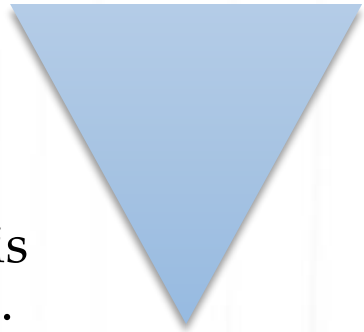
Introduction

- Write a simple slide for introducing your work
- Again Remember the inversed cone, start from wide area till you reach your problem (1 slide in ppt only)
- Purpose: Write some explanation why this document is important as you will illustrate your System arch. ..etc.
- Scope: Goals and objectives and how others get benefits of your SW
- Overview: How this document is organized (System Arch, Sequence Diagram, UI)
- Acronyms if any used



System Overview

- This is the most important part of your project (2 Sldies)
- Add any context or block diagrams first then move to System Architecture
- Arch: High level design for your System (Software, Hardware, Process)
- How subsystems collaborate
- Mention any external systems to be used and mention how you interact with them.
- Remember Popular Arch (Layered, MVC, Pipeline, repository…etc)

Decomposition Description

- Illustrate how your system work and add Object oriented detailed class diagram (1 Slide)
- You can add Activity Diagrams for the parts that need so and describe how the things running for your data and what kind of processes occurs.
- Remember use MVC and Interfaces as much as possible
- Use Design Patterns as much as possible as this part means you understand what you are doing.
- Be sure that all classes are covering all the system you plan to do in the future even after your GP time finished.
- Highlight and focus on the design parts that are crucial for your system

Design Rationale

- Because you have decided to use some architecture you must mention (2 Slide)
  - Why it was selected
  - Other Design Choices that you were able to selected from other similar systems and why you didn't choose them
  - It is time now to mention about your core algorithm parts that are subjected to be used in similar problems (CNN, KNN, DTW,SVM…..).
  - Explain each algorithm and how it works clearly.
  - If you use Frameworks like (Laravel , ZEND, Django, Flask …etc) explain them.

Data Design

- Draw your database schema (1 Slide)
- Illustrate the core parts
- Mention how they match non functional requirements
- List all table structures and OO classes their descriptions
- Remember to use Entity Attribute Value Model
- Make the Database for all your system **not what you have implemented** so far. In future some one might read your document and decide to complete the project.

Component Design

- This part is a core part of your work as you have to mention the main algorithm you are going to use to solve your problem (3 slides)
- Mention your algorithm in a clear way and highlight the core parts in it.
- Mention the parameters for your algorithm with your current data and how it works.
- Be sure you cover input and out for the algorithm clear and how they looks like before and after pre-processing.
- Mention how the excepted output looks like.

User Interface

- It is time to mention all the screens of your system. (1 slides)
- Draw wireframes for all your systems and how the screens are interconnected together.
- Be sure you cover usability issues like (Undo Operations, Menus, Controllers).
- Screen Objects and Actions: Use Sequence diagrams to write the relations and sequence for scenario to run.
- In the power point only put (**1 slide)** for the most important sequence diagram with core functionality.

Requirements matrix

- It is a must to be sure you cover everything written in the SRS.
- All SRS Functional Requirements must be stated in this table and referenced in the SDD.

Table 3.0.1: Traceability Matrix

Requirement ID	Requirement Type	Requirement Description	Source
BA3.1.1	New Functionality	Structure / high-Level Approach	Project Sponsor. Brainstorming session # 2. July 18th, 2011
BA3.2.1	Required	Database Considerations	Client request. May 3rd, 2011
BA3.2.2	New Functionality	Validation Categories	Sprint Review #3, May 14th, 2011
BA3.3.1	New Functionality	Copy/Paste/Undo	Sprint Review #3, May 14th, 2011
BA3.4.1	Required	Unique login ID	Initial concept meeting. January 5th, 2011

Requirement Traceability Matrix

Unique Req ID	Requirement description	Source /Requestor	Org /Dept	Business Justification/Need	WBS Deliverable	Test Strategy	UAT Responsibility	Status	Active/ Inactive Flag	Comments
1	Change the table component on the dashboard to a graph.	Ella Allen	Sales	Better representaion of the data and improved readability	Task 1.1 Task 4.7	Use cases to be developed.	Follow the test steps as defined in use cases and report any defects.	Done	Active	Jan 5:- Testing started. Jan 8:- Defected reported. Jan 9: Defect fixed Jan 10: UAT Continued
2	Add a drop down list for the regions	Tonya Harper	Sales	Will enable Area managers to understand their market more accurately	Task 1.2	Load testing to be done.	Load runner to be used to simulate a load and the regions will be verified for accurate representation	In Progress	Active	Make sure US territories hawaii and peurto rico are included in a separate regional unit.
3	Create a new category hierarchy to sorting the result set	Sammy Butler	Pricing	Will help the pricing department by automating the selection of categorized data.	Task 1.3	Assigned business users to perform unit testing as well as UAT	Check the categories in the base tables in the EDW.	Hold	Cancelled	It was determined that Pricing requirements were out of scope for this phase
4	...	...	...	...	...	...	...	...	...	...
5	...	...	...	...	...	...	...	...	...	...
6	...	...	...	...	...	...	...	...	...	...
7	...	...	...	...	...	...	...	...	...	...
8	...	...	...	...	...	...	...	...	...	...